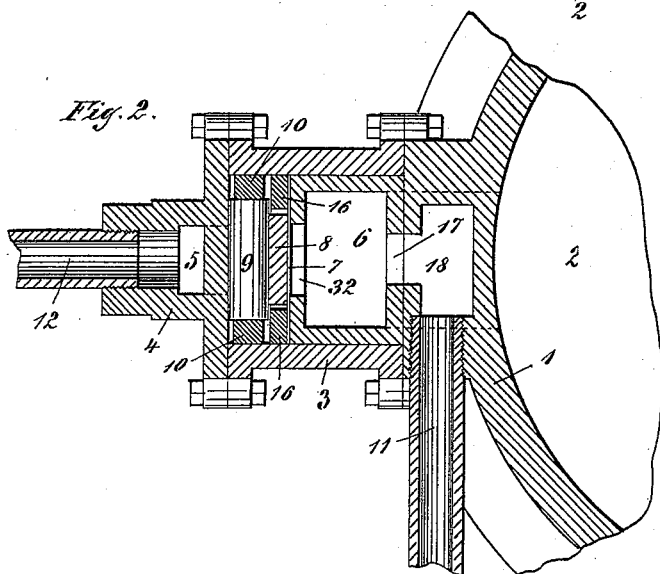
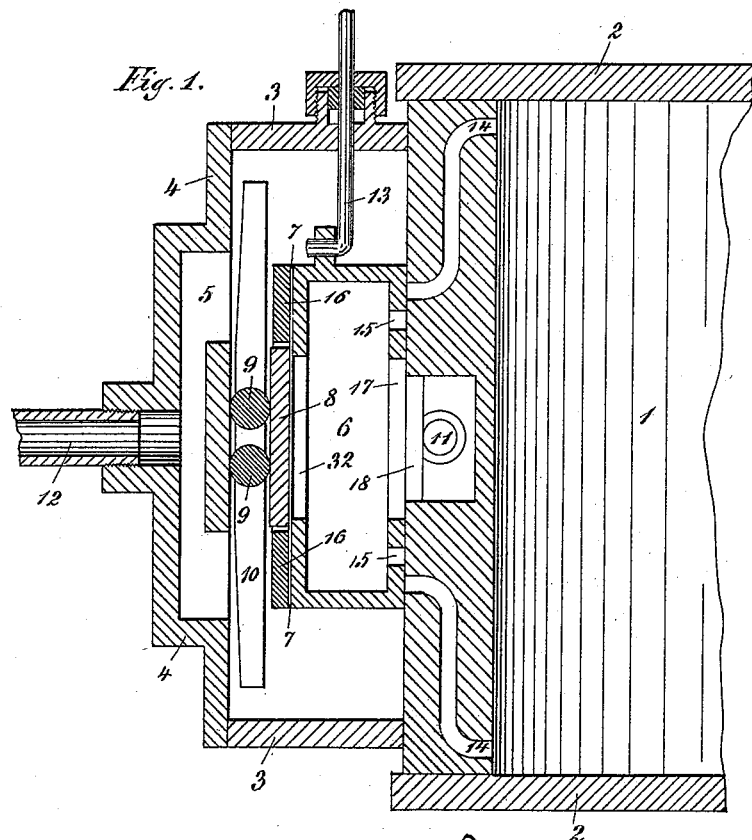


(No Model.)

N. T. EDSON.
ENGINE VALVE.

No. 419,509.

Patented Jan. 14, 1890.



WITNESSES:

E. C. Kelly
Henry Grabau

INVENTOR

Nathaniel T. Edson

UNITED STATES PATENT OFFICE.

NATHANIEL T. EDSON, OF NEW ORLEANS, LOUISIANA.

ENGINE-VALVE.

SPECIFICATION forming part of Letters Patent No. 419,509, dated January 14, 1890.

Application filed August 13, 1889. Serial No. 320,775. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL T. EDSON, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Improvement in Engine-Valves, of which the following is a specification.

My invention relates to an improvement in balance slide-valves; and the object of my improvement is to utilize the pressure of the live steam to keep the valve balanced and to allow the same to move upon its seat with the minimum amount of friction, and adapted to adjust itself automatically.

My invention therein consists in the device employed for balancing the valve and reducing friction by means of the live steam and in the various combinations of the operative parts, all as more fully hereinafter explained.

Figure 1 is a longitudinal sectional view of several parts of an engine embodying my invention, and Fig. 2 a vertical section of the same parts.

Similar numerals refer to similar parts throughout the several views.

1 is part of the cylinder; 2, cylinder-heads, and 3 steam-chest, within which is valve 6. Steam is admitted to valve 6 through steam-pipe 11.

4 is a cover to steam-chest, and 5 exhaust-passage leading from the chest.

32 is an opening formed in the top of the valve, and 16 a frame, the inside measurement of which is about one-quarter ($\frac{1}{4}$) of an inch larger than opening 32 on all sides, which frame is made to cover rubber 7, and is screwed on top of the rubber and valve.

Plate 8 is fitted loosely in opening formed by frame 16, and is placed on rubber 7 over opening 32, on top of which plate is placed rollers 9. The rollers are provided with pins in the center of their ends, which pins pass through bars 10, thereby holding the rollers parallel and centrally on plate 8.

13 is a valve-rod; 14 and 15, steam-passages, and 12 exhaust-pipe.

Opening 32 is about twice as large as both openings 15. Opening 18 through the valve-seat is about as large as both openings 15, and opening 32 about three times as large as opening 18. Opening 17 is as much longer than opening 18 as is the throw of the valve, thereby causing an equal and constant pressure on the rubber and plate 8. The tendency of the steam on entering the valve to lift it from its seat is counteracted by same pressure pressing against rubber 7 and plate 8, thus holding the valve to its seat automatically.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a balanced slide-valve, the combination of valve 6, having opening 32, frame 16, plate 8, rubber 7, bars 10, and rollers 9, with steam-chest 3, all substantially as set forth.

2. In a balance slide-valve, the combination of valve 6, having opening 32, frame 16, plate 8, and rubber 7, with steam-chest 3, all substantially as shown and specified.

NATHANIEL T. EDSON.

In presence of—

FELIX J. DREYFOUS,
P. J. McMAHON.